

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
3 January 2002 (03.01.2002)

PCT

(10) International Publication Number  
**WO 02/01866 A3**

(51) International Patent Classification<sup>7</sup>: **H04N 5/76**

(21) International Application Number: **PCT/IL01/00568**

(22) International Filing Date: **21 June 2001 (21.06.2001)**

(25) Filing Language: **English**

(26) Publication Language: **English**

(30) Priority Data:

60/214,129	26 June 2000 (26.06.2000)	US
60/235,632	27 September 2000 (27.09.2000)	US
60/249,513	17 November 2000 (17.11.2000)	US
60/260,770	10 January 2001 (10.01.2001)	US
60/263,705	24 January 2001 (24.01.2001)	US

(71) Applicant (for all designated States except US): **NDS LIMITED [GB/GB]**; One London Road, Staines, Middlesex TW18 4EX (GB).

(72) Inventors; and

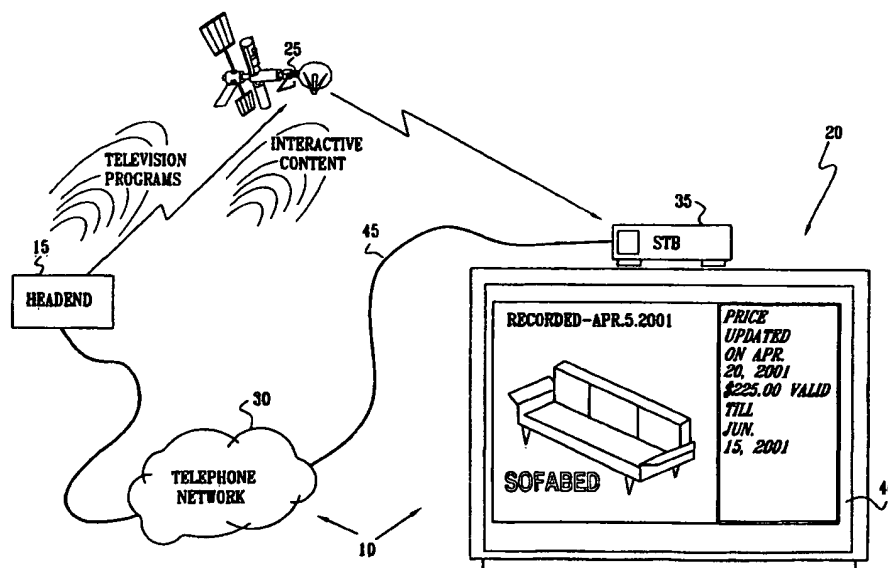
(75) Inventors/Applicants (for US only): **TSURIA, Yossi** [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box

23012, 91235 Jerusalem (IL). **WALD, Stephanie** [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). **TIROSH, Gadi** [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). **DARSHAN, Ezra** [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). **RICHARDSON, David** [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). **FINK, David** [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). **SHLISSEL, Moshe** [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). **VINOKUROV, Menachem** [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). **WACHTFOGEL, Reuven** [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). **JACOBS, Eli** [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). **COHEN, Einat** [IL/IL]; c/o NDS Technologies Israel Ltd., P.O. Box 23012, 91235 Jerusalem (IL). **BASTABLE, Ian** [GB/GB]; c/o NDS Limited, One London Road, Staines, Middlesex TW18 4EX (GB).

(74) Agents: **COLB, Sanford, T. et al.**; Sanford T. Colb & Co., P.O. Box 2273, 76122 Rehovot (IL).

[Continued on next page]

(54) Title: **TIME SHIFTED INTERACTIVE TELEVISION**



(57) Abstract: Methods and apparatus for managing, implementing and using interactive applications and content that are digitally recorded and viewed in real-time and/or a time-shifted mode are provided. The interactive applications may be associated with television programs or may be unrelated thereto, and may be transmitted together with television programs or separately therefrom. Interactive applications that are employed in a time-shifted mode can be matched to current conditions and interactive content may be updated to include current data. Users may view and manipulate highlights of television programs and receive alerts of occurrence of real-time events during viewing of recorded material. Additional manipulations of interactive applications and content are also enabled. Related apparatus and methods are also described.



(81) **Designated States (national):** AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

IT, LU, MC, NL, PT, SE, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- entirely in electronic form (except for this front page) and available upon request from the International Bureau

(88) **Date of publication of the international search report:**  
10 May 2002

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

International Application No

PC1/IL 01/00568

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 H04N5/76

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	GB 2 328 825 A (DAEWOO ELECTRONICS CO., LTD) 3 March 1999 (1999-03-03)  the whole document	1, 15, 22, 28, 32, 34, 41, 44, 54, 55, 63, 65, 76-99
A	WO 00 10327 A (DANMERE LIMITED) 24 February 2000 (2000-02-24)  the whole document	1, 15, 22, 28, 32, 34, 41, 44, 54, 55, 63, 65, 76-99



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

\*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

\*Z\* document member of the same patent family

Date of the actual completion of the international search

31 January 2002

Date of mailing of the international search report

07/02/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Verleye, J

## INTERNATIONAL SEARCH REPORT

International Application No

PCI/IL 01/00568

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,A	WO 01 33847 A (OPENTV, CORP.) 10 May 2001 (2001-05-10)  the whole document ---	1, 15, 22, 28, 32, 34, 41, 44, 54, 55, 63, 65, 76-99
P,A	WO 01 11865 A (BRITISH SKY BROADCASTING LIMITED) 15 February 2001 (2001-02-15)  the whole document -----	1, 15, 22, 28, 32, 34, 41, 44, 54, 55, 63, 65, 76-99

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IL 01/00568

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
GB 2328825	A	03-03-1999	KR	254051 B1	15-04-2000
WO 0010327	A	24-02-2000	AU	9549298 A	06-03-2000
			EP	1099338 A1	16-05-2001
			WO	0010327 A1	24-02-2000
WO 0133847	A	10-05-2001	AU	1252601 A	14-05-2001
			WO	0133847 A1	10-05-2001
WO 0111865	A	15-02-2001	AU	6307600 A	05-03-2001
			WO	0111865 A1	15-02-2001